

Introduction to Policy Evaluation for Public Health

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Why is deciding on appropriate public health policy different to buying a television

- There is a limited case for government regulation in the market for televisions.
 - The main functionality of a TV is likely to be the same no matter which one you choose
- There are a number of failures in the market for health: externalities, public goods, and asymmetric information which means that government intervention is needed.

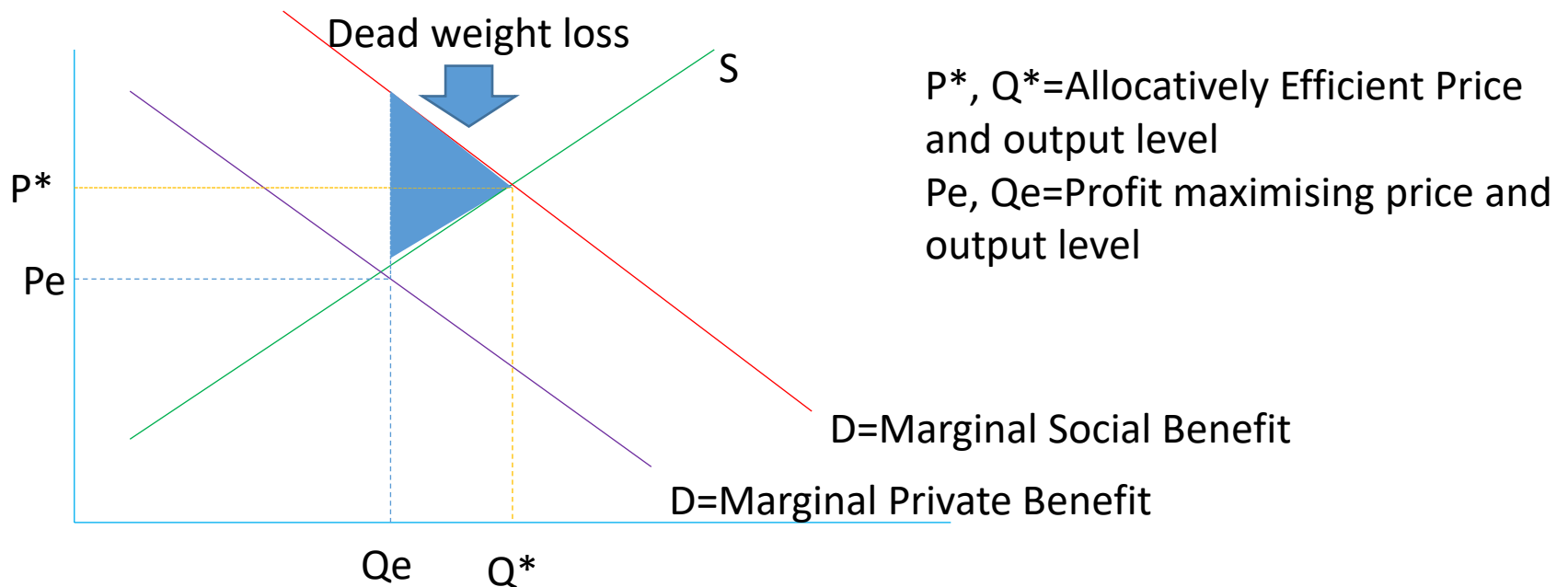
Externalities

- A cost or benefit from an economic transaction that falls on people who do not participate in the transaction.
- Standard market transactions account for the personal benefits of the individual participating in the transaction as it reflects their personal demand curve which includes self-assessed personal benefits.
- When there are external costs and benefits these are not accounted for by the parties involved in the transaction.

Externalities

- Failure to place a value on all costs and benefits can lead the market to over or under provide a good.

MMR Vaccine



Dead weight loss is a loss of economic efficiency from sub-optimal consumption

Public Goods

- A good or service that can be consumed simultaneously by everyone and from which no individual can be excluded.
- Consumers may be unwilling to pay for the good because they know once the good is provided they can consume it for free (**free rider problem**).
- Is health care a public good? NO!
- If one person consumes a drug then there is one less drug available for others to consume.
- Health care is also excludable as providers can prevent people from consuming it.

Can public health be a public good

A) Yes

B) No

Public Health as a Public Good

- Infection control through environmental management such as providing a clean water supply.
- Everyone benefits from being able to drink clean water without stopping anyone else from benefiting.
- Information, an integral component of any public health is also a public good.
- Information is only non-excludable if individuals can access it in pay for services only such as newspapers, TV, radio, text messages, etc.

Asymmetric Information

- When one person in an economic transaction has more relevant information than the other person.
- The cost of the uninformed party to obtain the relevant information for the transaction are prohibitively expensive. Inefficient for the party to try and obtain relevant information.
- Can lead to actions that work against the uninformed party resulting in market failure.

Asymmetric Information in Health Care

- Most medical information is technically complex and so not easily understood by a lay person and this is made worse by the fact that many illnesses do not repeat themselves, so that the cost of gaining the information is very high. You could argue that the only way a patient could become fully informed would be by training to be a doctor!
- The costs of a mistaken choice are much greater and less reversible than in other cases: in the worst situation if you make the wrong decision you will be dead. It is also often difficult to postpone treatment and so virtually impossible to shop around, and anyway how do you judge between different doctors' opinions?

Why is an economic perspective needed?

- To fund all possible public health prevention and treatment options exceeds the budget available.
- A choice needs to be made regarding if a policy should be implemented or continued.
- One way this choice can be made is by prioritising alternative treatment options through an analysis of their costs and benefits.

Effectiveness of Policy

- How do you know if free school meals are a cost-effective way to improve children's nutrition?
- Would offering subsidized swimming lessons to preschool children be cost-effective?
- Is obesity prevention or treatment more cost-effective for middle aged adults.



What is policy evaluation?

POLICY EVALUATION is the systematic collection and analysis of information to make judgements about contexts, activities, characteristics or outcome of one or more domains of the Policy Process.

Evaluation can be used to inform policy development, adoption, implementation, and effectiveness, and build the evidence base of policy interventions.

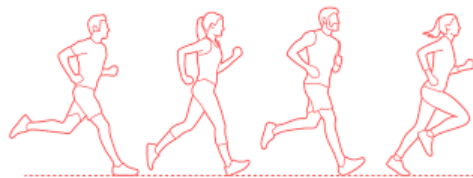
Reference: Centers for Disease Control and Prevention. *Using Evaluation to Inform CDC's Policy Process*. Atlanta, GA: Centers for Disease Control and Prevention, US Department of Health and Human Services; 2014.

How do we know if a policy is working

- Gold standard would be to conduct a randomised control trial
- If people are randomly assigned to the intervention or control group then any change in outcome we could attribute to the policy
- However, things are not so straight forward in the real world

In reality

- We may not decide to evaluate an intervention until after its up and running
- It may be unethical/infeasible to randomly assign people to the intervention or not



Data and Policy Evaluation

•It can be used to understand your population to help you avoid any interventions that may lead to intervention generated inequalities.

- Is physical activity participation correlated with the availability of green space and sports facilities

•Natural Experiments-evaluate a local/regional intervention without having before or after data if data is available from similar regions/areas which were not subject to the intervention.

•Secondary datasets can be used for forecasting

- Using current trends to forecast future rates of obesity, smoking, etc.

What is economic evaluation?

Economic evaluation is defined as the comparative analysis of alternative courses of action in terms of both their costs and consequences. (Drummond et al. 2005).

The basic tasks of any economic evaluation are to:

Identify

Measure

Value

Compare

The costs and consequences of the alternatives being considered.

Four main types of economic evaluation

Type of Analysis:	Identification of consequences:	Unit of measurement:
Cost-minimisation analysis	Single effect of interest common to both alternatives. Outcomes are identical	Money
Cost-effectiveness analysis (CEA)	Single effect of interest common to both alternatives, but achieved to different degrees.	<ul style="list-style-type: none"> - Life years gained - Pain reduction - Cases detected
Cost-utility analysis (CUA)	Single or multiple effects, not necessarily common to both alternatives.	<ul style="list-style-type: none"> - Quality Adjusted Life Years (QALYs) (generic or condition-specific) - Healthy Life Years Extended (HYES)
Cost-benefit analysis (CBA)	Single or multiple effects, not necessarily common to both alternatives.	Money e.g. <ul style="list-style-type: none"> - Human capital - Willingness to pay

Economic Evaluation and Public Health

- Up until 2012, cost-utility analysis where the main outcome measure is Quality Adjusted Life Years (QALYs) was the main method for determining cost-effectiveness for public health interventions.
- Two main issues:
 - 1) The EQ-5D which is used to calculate a QALY may not be sensitive enough to detect changes from public health interventions
 - 2) It may take several years for the health impacts of a public health intervention to have an impact but the costs of the intervention will be incurred up-front.

Economic Evaluation and Public Health (Continued)

- A typical economic evaluation may lead to incorrect conclusions around the cost-effectiveness of public health policy

• WHY?

Economic Evaluation and Public Health (Continued)

- Many public health interventions cannot be tested with a randomised control trial (RCT).
- A decision to evaluate a policy may also be made retrospectively or *ex ante* meaning traditional economic evaluation techniques may not be appropriate.

Public Health Economics is:

- A) A method to quantify the costs associated with lifestyle related diseases and other public health issues
- B) A method to evaluate prevention and treatment options compared with standard treatment
- C) A toolkit to determine if public health policies should be continued/enacted
- D) All of the above
- E) None of the above

Real World

- Often there is not the time, money, or the resources available to fully evaluate public health policy or proposed policy
- Retrospective evaluations pose challenges
- In this course we will introduce techniques that are commonly used for evaluation.
- Examples will be provided on how this methodology can be used and amended to provide a best guess on if a policy is cost-effective.